U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, Maryland 20910-3283

MEMORANDUM FOR: Distribution

FROM: W/OPS24 – Jerald J. Dinges

SUBJECT: AWIPS DX3 and DX4 Installation Operational Acceptance Test (OAT) Plan

The AWIPS DX3 and DX4 Installation Operational Acceptance Test (OAT) Plan is attached. The OAT will be conducted in tandem with the AWIPS DX3 and 4 OAT from June 5 through August 31, 2006. The expected date for a deployment decision is September 5.

The OAT was initially suspended due to significant impact on site operations at the first field test site, WFO San Diego (SGX). This test plan is the revised test plan addressing the deficiencies of the initial effort. The additional test sites are WSH WFO test system (NMTW), National Headquarters Operational RFC system (NHOR), Western Region Headquarters (VHW), WFO Wilmington, OH (ILN), Radar Operations Center (OSFW), WFO Sacramento, CA (STO), and California/Nevada RFC (RSA) which an on-site test team visited. In addition, all the AWIPS software build OB7.1 beta test sites were added to finish testing the installation without test team assistance. These sites are subject to change according to the OB7.1 test schedules.

Mary Buckingham (OPS24) is the OAT director. Please direct any questions or comments to Mary at mary.buckingham@noaa.gov or 301-713-0326 x137.

Attachment

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AWIPS DX3 and DX4 Server Installation Operational Acceptance Test (OAT) Plan

Introduction:
To address AWIPS system performance issues, two additional servers are being added to the system. They are the DX3 and DX4 (DX3&4). AWIPS software OB7.1 requires these servers to be installed into the system. The DX3&4 field modification kit was shipped to all sites in October 2005 with instructions for the sites to verify the contents and store them until the installation was ready. This was done because of the expiration of the prime contract with Northrup Grumman. A new contractor, Raytheon, won the new AWIPS prime support contract and began work in November 2005. Raytheon was tasked to install and support the installation of the new servers and the OB7.1 software.

The initial instructions for installing the DX3&4 servers were expected to be a low risk installation and were conveyed to the government in May 2006. Unfortunately, all National Weather Service headquarters (WSH) test systems had already had the servers installed in the Fall 2005 leaving no untouched systems for the pre-OAT testing phase. Two regional headquarters installed the servers using the initial AWIPS System Modification Note 29 (mod note). Serious problems were uncovered and some revisions were made to the instructions in an attempt to alleviate them. The initial test site, WFO San Diego was installed June 7 through 9 but resulted in serious operational impact. The OAT was suspended and revised to include the full test process beginning with testing on WSH systems. The installation would not be allowed to progress to field sites until it had reduced the impact on operations to a minimum.

The revised OAT plan will follow the OPS24 full high risk test cycle beginning again with testing on WSH systems. Once the installation is judged a reasonable risk, the next test site will be a Regional Headquarters system followed by field site testing.

Objectives:
Verify the installation instructions and procedure of the DX3&4 servers is clear and impacts sites minimally.
Verify the DX3&4 servers after installation do not adversely impact site operations.

Test Sites:
The schedule for testing and revised OAT sites is:

Site ID	Site	OB7.1 Date	DX3&4 Date
NMTW	WSH WFO test system	7/18/06	June 14–15
NHOR	National Headquarters Operational RFC system	7/25/06	June 21-22
VHW	Western Region Headquarters	7/19/06	June 27-28
ILN	WFO Wilmington, OH	8/16/06	July 10-13
OSFW	Radar Operations Center	---	July 6-7
STO	WFO Sacramento, CA	---	July 18-20
RSA	California/Nevada RFC	8/14/06	July 18-20
SLC	WFO Salt Lake City, UT	8/1/06	July 25-Aug 31

PBP	Pacific Region Headquarters	8/7/06	July 25-Aug 31
MHX	WFO Morehead City, NC	8/9/06	July 25-Aug 31
EAX	WFO Pleasant Hill, MO	8/9/06	July 25-Aug 31
PTR	Pacific NW RFC	8/10/06	July 25-Aug 31
CLE	WFO Cleveland, OH	8/22/06	July 25-Aug 31
VRH	Alaska Region Headquarters	8/22/06	July 25-Aug 31
GID	Hastings, NE	9/6/06	July 25-Aug 31
HUN	WFO Huntsville, AL	9/6/06	July 25-Aug 31
GJT	WFO Grand Junction, CO	TBD	Aug 8-Aug 31

The sites in bold have had an on-site test team observe the installation. The remaining sites will test the mod note on their own but with telephone support from WSH and the prime contractor if needed. They will report their comments, suggestions for improving the mod note, and any problems to the OAT Test Director, Mary Buckingham (mary.buckingham@noaa.gov, 301-713-0326 x137). Changes to the OB7.1 beta test schedule may affect site participation in this OAT and the planned installation date.

Impact of testing on Sites:
The DX3&4 installations will require 40 to 60 minutes of DX1 and DX2 downtime which means the GFE will not operate during this time and no radar data will be transmitted. Workstations will continue to operate with whatever data is on their own disks but no new data will be available. When the system comes back up, the incoming data that was cached on the communication processors (CP) will be restored with no data loss. The remainder of the installation will not impact site operations. If the installation is worked straight through, the down time will be about midday. The down time must be negotiated with the forecast staff.

OAT Prerequisites:
1. A third 120 volt, 20 amp circuit must be available under the DX rack (action by site)
2. The latest draft of AWIPS System Modification Note 29 (action by OPS24)
3. The installation of tar files are on the site system (action by Raytheon)

OAT Methodology:
The OAT site WFO Meteorologists-in-Charge (MICs), and RFC Hydrologists-in-Charge (HICs) have the authority to suspend the OAT at their site if, at any time, the site service operations are negatively affected. They will notify the OAT director of this decision and why it was made as soon as practical.

Mary Buckingham (OPS24) is the OAT Test Director. She will ensure the OAT sites understand what is required of them and ensure the necessary changes are made to the mod note.

OAT site personnel will perform the installation following the latest draft of System Modification Note 29. The note will be updated following each on-site installation and upon receipt of input from the other test sites. It will then be sent to the next test site by email. For the on-site tests, Mary will observe the installation and ensure the mod note is updated with the clarifications and corrections the test reveals. Mary will also ensure technical assistance is available when needed from the NCF and the Raytheon engineering support. **Each OAT site should ensure their planned installation date**

is on the AWIPS Calendar so the contractor can put the installation scripts on their system.

Raytheon will make any needed changes to the installation scripts to ensure minimal impact on site operations. Raytheon will also support the site to minimize impact on site operations.

The hardware installation will take about 3 hours and will not impact site operations. The initial portion of the configuration portion will require the DX1 and 2 to be rebooted, the NAS unmounted, and the heartbeat cluster disabled. This will require about 40-60 minutes of system downtime. The remainder of the installation should not affect operations at all. There are three 90 minute wait periods while the DX disks copy the mirror. The total configuration time should be 7-8 hours.

Deficiency Classification:
Validated deficiencies will be categorized as follows:
a. **Critical Deficiency** - A repeatable problem severely impacts site operations; no acceptable workaround exists.
ACTION: The TRG recommends suspension of the test to the Project Manager. If suspended, the test resumes when the Project Manager approves a proposed corrective action. When an approved corrective action is implemented, regression testing may be required.
b. **Urgent Deficiency** - A repeatable problem severely impacts site operations; however, an acceptable workaround exists.
ACTION: The test continues with the current system using a workaround until a permanent fix is available. Once the Project Manager approves the fix, only those test areas affected by the problem will be retested.
c. **Routine Deficiency** - A repeatable minor problem does not significantly impact site operations.

All deficiencies will be corrected by the end of the OAT and before deployment to the rest of the NWS. Critical deficiencies may result in suspension of the OAT and require additional testing of the corrected procedure and scripts on non-operational systems before returning to operational sites.